

REMARKS

Applicants respectfully request consideration of the subject application.

This Response is submitted in response to the Office Action mailed November 1, 2007. Claims 1-27 are pending. Claims 1-3, 6, 10 and 12 are rejected and claims 4, 5, 7-9, 11 and 13-27 are withdrawn. In this Amendment, claims 1, 3 and 12 have been amended, claims 2, 10 and 13-27 have been cancelled and claim 28 has been added. New claim 28 reads on the elected species. No new matter has been added.

35 U.S.C. §§ 102 and 103 Rejections

The Examiner has rejected claims 1, 2, 3, and 6 under 35 U.S.C. 102(b) as being anticipated by Yamazaki, (Japanese Patent No.: JP 59215732, hereinafter "Yamazaki"), claims 1 and 6 under 35 U.S.C. 102(b) as being anticipated by Kaloyeros et al., (U.S. Patent No. 5,968,611, hereinafter "Kaloyeros"), claims 1, 2, and 6 under 35 U.S.C. 102(e) as being anticipated by McSwiney et al., (US Patent Publication 2005/0025885, hereinafter "McSwiney") and claims 1, and 6 under 35 U.S.C. 102(e) as being anticipated by Roeder et al., (US Patent Publication 2005/0042888, hereinafter "Roeder"). The Examiner has rejected claim 10 under 35 U.S.C. 103(a) as being unpatentable over Kaloyeros in view of Horikawa (U.S. Patent No. 6,780,476, hereinafter "Horikawa"), claim 12 under 35 U.S.C. 103(a) as

being unpatentable over Kaloyeros in view Horikawa and further view of Elers et al., (U.S. Patent No. 6,767,582, hereinafter "Elers").

Applicants have amended claim 1 to include limitations similar to claim 10. Claim 10 was rejected under 35 U.S.C. 103(a) as being unpatentable over Kaloyeros in view of Horikawa.

Applicants do not admit Horikawa is prior art and reserve the right to swear behind Horikawa at a later time. Nevertheless, Applicants submit the pending claims are patentable over the cited art.

The Examiner admits Kaloyeros fails to describe mixing the precursors in an organic solvent. The Examiner submits Horkiawa describes mixing the precursors into an organic solvent, resulting in reduction of dust and adhesion of deposits to the supply conduit. The Examiner further asserts that it would have been obvious to combine Kaloyeros and Horkiawa "to reap the benefits of reducing dust and adhesion of deposits on the supply conduit" and "because the technique for improving a particular class of devices, methods or products was part of the ordinary capabilities of a person of ordinary skill in the art, in view of the teaching of the technique for improvement in other situations." Applicants disagree.

Horikawa relates to a method of forming a high-k dielectric film. In Horkiawa, the siloxane is mixed with the organic solvent in the first chamber,

and the organometallic compound is added to the combined siloxane and organic solvent in the second chamber.

Kaloyeros, in constrast, relates to a method for forming a silicon nitride film that does not include mixing a silicon precursor with a nitrogen precursor and further with an organic solvent. In addition, the deposition temperature in Kaloyeros is between 200°C – 1000°C. Kaloyeros states that a more preferred temperature range is between about 400°C – 800°C and the most preferred range is between 600°C – 800°C. See, e.g., col. 5, lines 29-31 of Kaloyeros. In the examples given in Table 2 of Kaleyeroyos (spanning cols. 11 and 12), deposition did not occur at the temperatures of 450 or 550°C. The deposition only occurred at temperatures above 550°C.

In contrast, embodiments of the presently claimed invention in fact permit the deposition of silicon nitride films at a temperature below 550°C. Because both precursors are dissolved in the same solvent, they are in close molecular proximity. This close proximity facilitates reactions in the deposition chamber, and can lead to transition states while still dissolved in the solvent, further enhancing reactivity. An additional exemplary advantage is that the use of the organic solvent permits the use of low-vapor pressure silicon precursors with attractive reactivity that normally would not be practical as an independent precursor source.

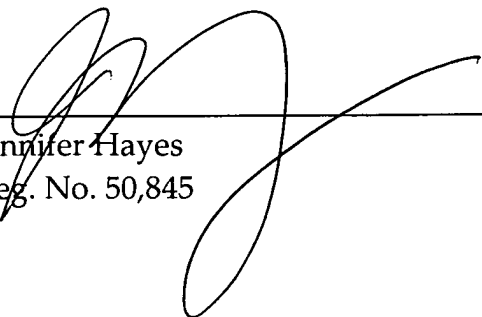
Thus, the cited art fails to teach or suggest all of the limitations of independent claim 1. Claims 3-9 and 11-12 depend, directly or indirectly, from independent claim 1. Applicants, accordingly, respectfully request withdrawal of the rejections under 35 U.S.C. § 102 and § 103.

Applicants respectfully submit that the present application is in condition for allowance. If the Examiner believes a telephone conference would expedite or assist in the allowance of the present application, the Examiner is invited to call Jennifer Hayes at (408) 720-8300.

Please charge any shortages and credit any overages to Deposit Account No. 02-2666. Any necessary extension of time for response not already requested is hereby requested. Please charge any corresponding fee to Deposit Account No. 02-2666.

Respectfully submitted,
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